Remarks

Claims 1-8 were originally in the case. As a result of the amendments being made herewith, claims 1 and 3-8 are now in the case.

Rejections Under 35 U.S.C. § 102

In paragraph 2 of the Office Action, claims 1, 2, and 8 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,383,724 ("Carter"). However, neither Carter nor any of the other cited references, alone or in combination, anticipate or make obvious any of these claims.

As amended, claim 1 requires the steps of "positioning at least one semiconductor wafer in a process tank" and "introducing a mixture of ozone and deionized water to the process tank via a sparger plate <u>at an increased flow velocity</u> across said wafer <u>while said wafer is submerged</u> in said deionized water and ozone."

Carter, does not teach or suggest a process tank having a sparger plate adapted to increase flow velocity of ozonated deionized water across the semiconductor wafers <u>*while said semiconductor wafers are submerged in said ozonated deionized water*</u>, as is required by claim 1. Moreover, one skilled in the art would not modify the process tank of Carter to submerge the wafers during such processing. The spray post 140 of Carter is adapted to processes the wafers 132 in an <u>*unsubmerged state*</u>. <u>See Carter</u>, Figure 2. Submerging the wafers 132 during processing would effectively negate the operability of the spray post 140 in that the sprayed liquid would not contact the wafers 132. <u>See Carter</u>, Figure 2. Additionally, Carter rotates the wafers 132 via turntable 156 during processing. <u>See Carter</u>, Col. 9, Ll. 1-7. Such rotation would not be done while the wafers are in a submerged state because unwanted force would be exerted on the wafer surfaces. This force could cause the wafers to break or be damaged. Thus, Carter fails to teach, or suggest, the invention of claim 1 and can not be properly combined with any other reference, including Matthews or Dryer, to show this limitation.

Regarding the Matthews reference, the gas diffuser 4 of Matthews is not a sparger plate as this element is present in claim 1 and defined in the specification. According to the invention, the sparger plate functions not only to diffuse ozone into the deionized water but also to *increase the velocity of the ozonated deionized water flow as it passes the semiconductor wafers*. *See Present Application*, pg. 7, ll. 13-17; pg. 6, ll. 6-10. Claim 1 contains this limitation. In functioning to diffuse gas into liquid and distribute the resulting mixture into the process tank, a sparger plate allows both the liquid and the dissolved gas to pass through its holes. This is how the fluid flow velocity is increased. To the contrary, the gas diffuser 4 of Matthews is designed to be hydrophobic, prohibiting the liquid from passing through it and only allowing the *gas* to pass through its permeable membrane. *See Matthews*, Col. 8, Ll. 53-55. Thus, Matthews fails to teach a sparger plate, as is required by claim 1.

Even if the gas diffuser 4 of Matthews is considered to be a sparger plate, gas diffuser 4 does not "increase flow velocity of ozonated deionized water across said semiconductor wafers," as is required by claim 1. The gas diffuser 4 of Matthews is specifically designed to diffuse the gas into the incoming liquid in a *countercurrent flow direction only*. *See Matthews*, Col. 8, Ll. 45-48. This is achieved by designing gas diffuser 4 so that its top is constructed of an *impermeable* member while its bottom is constructed of a *permeable* membrane. The gas diffuser 4 is then positioned at the bottom of the tank below the semiconductor wafers but above the liquid inflow. *See Matthews*, Col. 8, Ll. 45-48, Fig. 1, and Fig. 3. This countercurrent introduction of the gas into the liquid stream not only fails to increase the velocity of the incoming liquid, but actually decreases the resulting flow velocity of the liquid as the mixture passes the semiconductor wafers because the gas current velocity counteracts the liquid flow velocity. Therefore, Matthews fails to teach a sparger plate and process "adapted to increase flow velocity of ozonated deionized water across said semiconductor wafers," as required by claim 1.

Matthews specifically teaches diffusing the gas into the liquid stream in a countercurrent direction for the specific purpose of achieving improved adsorption of the gas into the fluid. *See Matthews*, Col. 8, Ll. 48-52. Modifying the gas diffuser 4 to increase the flow velocity of the

liquid over the semiconductor wafers would require that the gas be diffused in the *same direction* of the current of the liquid, thus eliminating the improved adsorption method taught by Matthews. Thus, not only does Matthews fail to disclose a sparger plate "adapted to increase flow velocity of ozonated deionized water across said semiconductor wafers," it actually teaches away from modifying gas diffuser 4 to function in such a way. Thus, Matthews is not properly combinable with any prior art references to show this element and does not affect the patentability of claim 1.

It is therefore requested that the rejection of claim 1 over Carter be withdrawn and the claim allowed.

Because claims 3-8 depend on claim, and because claim 1 is argued as allowable over the prior art of record, it is requested that the rejections of these claims also be withdrawn and allowed.

It is believed that all grounds of rejection have been traversed or obviated, and that none of the references, either alone or in combination, teach or suggest the claimed invention. It is requested that all of the rejections be withdrawn and that the claims be allowed.

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